





PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in Cleats for Securing and Supporting Cables, Pipes and the like

We, LONDON ENGINEERS PATTERN COMPANY LIMITED, a British Company, of Waddon Marsh Works, Purley Way, Croydon, Surrey, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention has reference to improvements in metallic cleats for securing cables, pipes and the like to surfaces of the type comprising a base plate adapted to be bolted or otherwise secured to a surface and having extending therefrom a pair of clamping arms, one of which is pivoted to the base plate, the arms being adapted to be drawn together to embrace the cable, pipe or the like, or a bundle thereof (e.g. three) hereinafter referred to for convenience as cables. Cleats of this type, referred to in this specification as the type hereinbefore described, are used sometimes with the base plate generally horizontal and sometimes generally vertical with the cables in each case extending horizontally between the clamping arms and, when intended for the vertical position, it is desirable that one of the arms (which in use is disposed lower than the other) shall be self-supporting in its projecting position. to form a firm bracket on which the cables can be laid during the clamping. For this purpose it is the practice to cast one of the arms integrally with the base plate. This construction renders the cleat liable to fracture at the juncture of the fixed arm with the base plate should undue force be applied when drawing the hinged arm on to the fixed arm in the clamping operation, and particularly if the cleat is used with oversize cables as is often the case.

The present invention has for its objects to provide a construction of cleat of the type hereinbefore described which simplifies manufacture and facilitates storage and packing, and one, moreover, which includes a virtually fixed arm not so liable to fractures of the character described.

According to the invention, a cleat for securing and supporting cables, pipes and the like of the type hereinbefore described is characterised in that one arm is pivoted to

the base plate to swing away freely from the second arm, and the second arm is separate from and secured to the base plate by means rendering the arm substantially immovable when attached to the base plate. For example the said second arm may be formed at one end with a lug or lugs co-operating with a lug or lugs on the base plate, and is attached to said base plate by a pin passing through the co-operating lugs, the lug or lugs on the said arm including an abutment co-acting with a part of the base plate to render the arm substantially immovable when the pin is in position. An embodiment of this example will be described in detail later wherein the base plate is formed with two pairs of hinge lugs between which a knuckle lug on each arm is located, the arms each being secured by a hinge pin passing through the knuckle lugs and base-plate lugs, the knuckle lug of one of the arms being formed with a tongue loosely fitting into a slot or recess in the base plate between the base plate lugs so as to permit only a very limited rocking movement rendering the arm sufficiently "fixed" for the purpose hereinbefore described. By this construction the cleat can be made up from three simple castings, instead of two which would include one of comparatively complicated design, and the three parts when disassembled can be packed more easily and compactly than constructions including an integral arm. At the same time the advantages of a fixed arm are not lost, while the play permitted by the limited rocking movement minimises the risk of fracture.

In order that the said invention may be readily understood two embodiments thereof will be described, by way of example, with the aid of the accompanying drawings wherein:—

Figure 1 is a sectional side view on the line I—I of Figure 2;

Figure 2 is a front elevation (looking from the left of Figure 1);

Figures 3 and 4 are enlarged perspective fragmentary views of the ends of the arms seen in Figures 1 and 2 by which they are attached to the base plate; and

Figure 5 is a perspective view showing the

base plate of another form of the invention and fragments of the attaching ends of the two arms which co-operate therewith.

Like letters of reference indicate the same or corresponding parts in the several views.

Referring to the drawings, the cleat shown is of the so-called trefoil type, i.e. where the cable opening formed by the base plate 1 and closed arms 2 and 3 is roughly of trefoil section so as to take snugly three cables, a fairly common number in a bundle supported by one of these cleats. The base plate is of approximate oblong outline with longitudinal bolt slots 4 at each end, with one flat face 5 to seat on a supporting surface, and the other face shaped to take the arms 2 and 3. This second face is raised at the centre to form a transverse bulge 6 flanked by two arcuate depressions 7 which merge into similar curves 8 on the respective inner surfaces of the arms when the latter are closed together so as to produce the aforesaid trefoil section as seen in Figure 1.

Referring particularly to Figures 1—4, on each side of the said raised face a pair of hinge lugs 9 are cast standing up at right angles to the base plate 1 and flush with the edges of the oblong and between each pair the knuckle lug 10 of a hinge carried by the side arms 2 and 3 fits and is held by a pin passed through the lugs. The knuckle lug 10 of the arm 2 is a conventional barrel which can rotate freely between its associated lugs 9, whereas the barrel of the lug 10 of the other arm 3 is made with a tongue 11 which loosely fits into a slot or recess 12 in the base located between the two lugs 9. The tongue and slot or recess constitute abutment means which, although permitting a limited rocking movement of the arm 3 about its hinge, nevertheless renders it virtually fixed for the purpose hereinbefore mentioned.

Apart from the said difference in the knuckle construction of the arms, they are otherwise similar in shape. Each has an interior configuration so that when closed they make up with the base plate a trefoil inner section as already described and on the exterior they are substantially flat so as to come together as an inverted vee projecting from the base. At their tips they have flanges or lugs 13 which come together for bolting by a bolt 14.

In a modification as shown in Figure 5 the inner knuckle lug of the hinge is formed on the base plate 1 as an upstanding approximately semi-circular transverse bulge 15 on each side of the raised centre 6 thereof, and the hinged ends of the side arms 2 and 3 each has the two outside hinge lugs 10a to

embrace respectively the said inner knuckle lugs. The base plate 1 is cut away on each side of the said knuckle lugs 15 so as to form abutment faces 16, and whereas the hinge lugs of one arm 2 are curved so as to turn freely against or clear of the abutment faces, one or both of the other lugs 10a on the arm 3 are formed with flat abutment faces 17 complementary to the abutment faces 16 of the base plate, and disposed just sufficiently clear to permit the limited rocking aforesaid.

What we claim is:—

1. Cleat for securing and supporting cables, pipes and the like of the type hereinbefore described characterised in that one arm is pivoted to the base plate to swing away freely from the second arm, and the second arm is separate from and secured to the base plate by means rendering the arm substantially immovable when attached to the base plate.

2. Cleat according to Claim 1 wherein the said second arm is formed at one end with a lug or lugs co-operating with a lug or lugs on the base plate, and is attached to said base plate by a pin passing through the co-operating lugs, the lug or lugs on the said arm being secured to the base plate by means including an abutment co-acting with a part of the base plate and constituting means to render the arm substantially immovable when the pin is in position.

3. Cleat according to Claim 2 in which the base plate is formed with two pairs of hinge lugs between which a knuckle lug on each arm is located, the arms each being secured by a hinge pin passing through the knuckle lugs and base-plate lugs, and in which the co-operating lug arrangement of the second arm includes a knuckle lug formed with a tongue constituting the abutment, said tongue loosely fitting into a slot or recess in the base plate between the base plate lugs so as to render the arm so constructed substantially immovable when attached to the base plate.

4. A cleat for securing and supporting cables, pipes and the like constructed, arranged and operating substantially as herein described and as illustrated in Figures 1—4 of the accompanying drawings.

5. A cleat for securing and supporting cables, pipes and the like constructed, arranged and operating substantially as herein described and as illustrated in Figure 5 of the accompanying drawings.

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PROVISIONAL SPECIFICATION

**Improvements in Cleats for Securing and Supporting Cables,
Pipes and the like**

We, LONDON ENGINEERS PATTERN COMPANY LIMITED, a British Company, of Waddon Marsh Works, Purley Way, Croydon, Surrey, do hereby declare this invention to be described in the following statement:—

This invention has reference to improvements in metallic cleats for securing cables, pipes and the like to surfaces, and more particularly to the type comprising a base plate to be bolted or otherwise secured to a surface and having extending therefrom a pair of clamping arms, at least one of which is pivoted to the base, adapted to be drawn together to embrace the cable, pipe or the like, or a bundle thereof (e.g. three) hereinafter referred to for convenience as cables. Cleats of this type are used sometimes with the base plate in a horizontal plane and sometimes in a vertical plane with the cables in each case extending horizontally between the clamping arms and, when intended for the vertical position, it is desirable that one of the arms (which in use is disposed lower than the other) shall be self-supporting in its projecting position, to form a firm bracket on which the cables can be laid during the clamping. For this purpose it is the practice to cast one of the arms fixed integrally with the base. This construction renders the cleat liable to fracture at the juncture of the fixed arm with the base should undue force be applied when drawing the hinged arm on to the fixed arm in the clamping operation, and particularly if the cleat is used with oversize cables as is often the case.

The present invention has for its objects to provide a construction which simplifies manufacture and facilitates storage and packing, and one, moreover, which includes a virtually fixed arm not so liable to fractures of the character described.

According to the said invention there is a base plate to which one arm is pivoted as usual to swing away freely from the other arm to give clearance for admitting the cables, and the second arm is also pivoted to the base plate but with abutment means at the hinge to permit only a very limited rocking movement rendering the arm sufficiently "fixed" for the purpose hereinbefore described. By this construction the cleat can be made up from three simple castings, instead of two which would include one of comparatively complicated design, and the three parts when disassembled can be packed more easily and compactly than constructions including an integral arm. At the same time the advantages of a fixed arm are not lost, while the play permitted by the

limiting rocking movement minimises the risk of fracture.

In one embodiment, by way of example, the cleat is of the so-called trefoil type, i.e. where the cable opening formed by the base and closed arms is roughly of trefoil section so as to take snugly three cables, the conventional number in a bundle supported by one of these cleats. The base is of approximate oblong outline with longitudinal bolt slots at each end, with one flat face to seat on a supporting surface, and the other face shaped to take the arms. This second face is raised at the centre to form a transverse bulge flanked by two arcuate depressions which merge into similar curves on the respective inner surfaces of the arms when the latter are closed together so as to produce the aforesaid trefoil section.

On each side of the said raised face a pair of hinge lugs are cast standing up at right angles to the base and flush with the edges of the oblong and between each pair the knuckle of the hinge carried by the side arm fits. On one side the knuckle is a conventional barrel which can rotate freely between the lugs, whereas on the other side the barrel is made with a tongue which loosely fits into a slot or recess in the base located between the two lugs. The tongue and slot constitute abutment means which, although permitting a limited rocking movement of the arm about its hinge, nevertheless renders it virtually fixed for the purpose hereinbefore mentioned.

Apart from the said difference in the knuckle construction of the arms, they are otherwise similar in shape. Each has an interior configuration so that when closed they make up with the base a trefoil inner section and on the exterior they are flat so as to come together as an inverted vee projecting from the base. At their tips they have flanges or lugs which come together for bolting.

In a modification the inner knuckle of the hinge is formed on the base as an upstanding approximately semicircular transverse bulge on each side of the raised centre thereof, and the hinged ends of the side arms each has the two outside hinge lugs to embrace respectively the said inner knuckles. The base is cut away on each side of the said knuckles so as to form abutment faces, and whereas the hinge lugs of one arm are curved so as to turn freely against or clear of the abutments, one or both of the other are formed with flat abutment faces complementary to the abutments of the base, and dis-

posed just sufficiently clear to permit the
limited rocking aforesaid.

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